

JANITROL

GAS-FIRED



SURFACE COMBUSTION CORPORATION • TOLEDO, OHIO



JANITROL

26-20

"CF" GAS-FIRED THE DELUXE OF THE

A COMPLETE LINE FOR EVERY REQUIREMENT

Janitrol manufactures a full line of gas-fired winter air conditioners and furnaces. Correct sizes and types are available for any style of home. The CF Series, now to be described, is the de luxe of the entire Janitrol line.

DESIGN FEATURES

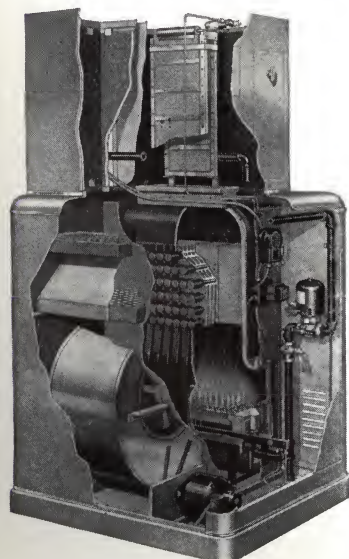
HEATER . . . Cast iron with multiplicity of embedded copper rods for conduction of heat to exterior of heater. Exposed end of each rod is equipped with a helical copper fin thus exposing a large effective heating surface to the air to be heated.

CABINET . . . High grade furniture steel. Finished in opalescent blue with chromium trim and fittings. No bolts, screws or nuts mar the exterior. Casing encloses all controls.

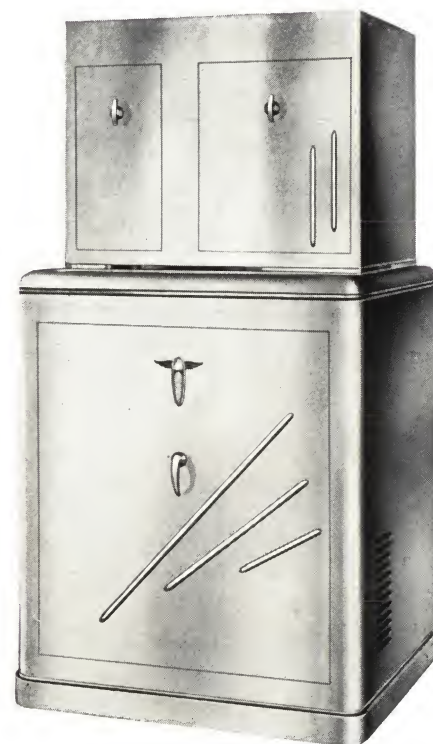
BURNER . . . Janitrol multi-inspirator type consisting of a series of individual burners with multi-port heads of high-temperature refractory material. Each head burns with short, sharp flame.

BLOWER . . . Multi-blade centrifugal type with felt vibration insulation between blower outlet and casing partition. Rubber mounted to base of unit to prevent vibration.

MOTOR . . . Mounted on aligned base with a single thumb screw adjustment for proper belt tension. V belt drive.



Sectional View CF Conditioner. Type D.



For use in exceptionally low basements, the CF units are also available without the air bonnets. Those without the bonnets, as pictured below, carry the designation "Type A." Those with the bonnets, as pictured above, carry the designation "Type B." "Type C," "Type D," according to the controls furnished. See "Standard Equipment" on page three.

FILTERS . . . Replaceable type composed of strands of spun glass coated with special adhesive.

HUMIDIFIER . . . See "Standard Equipment" on page three. Types A and B use cast iron evaporating pans with copper float tank. Types C and D use refractory plate type of humidifiers.

BACK DRAFT DEVICE . . . Special Janitrol design. Simple and extremely effective.

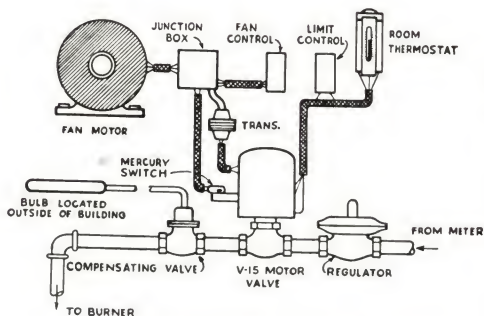
CONTROLS . . . See "Standard Equipment" at bottom of page three.



CF Conditioner Types A and B

WINTER AIR CONDITIONER

JANITROL LINE



COMPENSATING CONTROL SYSTEM

JANITROL CONTROL SYSTEMS

(1) **JANITROL COMPENSATING CONTROL SYSTEM (Furnished with Type D)**—This system is designed to regulate the heat supplied to the house directly in proportion to the heat losses of the house by controlling both the amount of gas burned and the volume of air delivered. Thus, heat is supplied only at the required rate resulting in constant, uniform temperature and much longer periods of blower operation.

When heat is required, thermostat opens V-15 motor valve admitting gas to burner. The amount of gas admitted to burner is regulated by the compensating valve. This valve is actuated by the outside temperature by means of a temperature bulb mounted outside the house. When V-15 gas valve opens, a mercury switch, on valve arm, starts the two-speed blower motor at low speed, (1140 r.p.m.). At low speed, blower delivers approximately 50% of maximum volume. Blower continues to operate at low speed as long as air temperature in unit is below 175° F. If outside temperature is mild, gas input to burner will be low and heating cycle may be completed with fan operating at low speed.

When outside temperature is low and gas input is higher, air temperature in unit eventually will reach 175° F. At this temperature, blower motor automatically switches to high speed, (1725 r.p.m.), increasing air delivery to maximum. This continues until air temperature in unit drops to 125° F., when blower switches back to low speed. When weather is extremely cold, blower may operate at high speed until heating cycle is completed. When room temperature reaches thermostat setting, thermostat closes V-15 gas valve and blower motor stops.

high speed, (1725 r.p.m.), increasing air delivery to maximum. This continues until air temperature in unit drops to 125° F., when blower switches back to low speed. When weather is extremely cold, blower may operate at high speed until heating cycle is completed. When room temperature reaches thermostat setting, thermostat closes V-15 gas valve and blower motor stops.

(2) **CUSTOMARY SYSTEM (Furnished with Types A, B and C)**—Thermostat opens V-15 gas valve when heat is required. When air in unit reaches a predetermined temperature, an automatic switch starts single speed blower motor. When room temperature reaches thermostat setting, thermostat closes V-15 gas valve. Blower motor operates until air temperature in unit reaches predetermined minimum.

ENGINEERING DATA

Catalog No.	Btu Input per Hour	*Btu Output At Register	†Approx. C.F.M. Delivered At Register	GAS CAPACITY Cu. Ft. per Hour At Various Btu			BLOWER DATA			
				550	800	1000	Diam. of Wheel	Width of Wheel	No. of Wheels	R.P.M. At ½" Static
CF 90-37	90,000	64,800	900	164	113	90	14"	7"	1	580
CF120-37	120,000	86,400	1200	218	150	120	14"	10"	1	570
CF150-37	150,000	108,000	1500	273	188	150	14"	14"	1	570
CF180-37	180,000	129,600	1800	328	225	180	14"	7"	2	590
CF240-37	240,000	172,800	2400	436	300	240	14"	10"	2	610

*Allows for 10% heat loss from warm air ducts between bonnet and register. This is normal loss for average installations. Longer than average ducts, type of duct covering, duct exposure, whether or not basement is heated, etc., should be considered and Conditioner sized accordingly.

†It is assumed that approximately 75% of Btu input rating will be delivered and, consequently, C.F.M. shown will be approximately the volume of air passing through duct system and is volume on which the duct system should be designed. The approximate C.F.M. is based on air temperature between 140° and 150° F.

DIMENSIONS IN INCHES

Catalog No.	DIMENSIONS				Flue Diam.	*Gas Conn.	H.P.	MOTOR DATA			
	A	B	C	D				Types A, B & C		Type D	
								Type Motor	R.P.M.	Type Motor	R.P.M.
CF 90-37	33½	23¾	43¾	23½	5	¾	½	S.P.	1725	CAP.	1725-1140
CF120-37	38	27¾	48¾	28	5	1	¾	S.P.	1725	CAP.	1725-1140
CF150-37	43¾	33¾	55	33¾	6	1	¾	CAP.	1725	CAP.	1725-1140
CF180-37	48¾	38¾	59½	38¾	6	1¼	¾	CAP.	1725	CAP.	1725-1140
CF240-37	57¾	47¾	70	47¾	7	1¼	†½	CAP.	1725	CAP.	1725-1140

*Size of manifold connection—not size of gas supply line.

S.P.—Split phase type motor.

CAP.—Capacitor type motor.

†All types CF240-37 Conditioners supplied with 220 V.-60 cyc.-1 phase-½ h.p. motor. The standard 3-wire service, normally available, affords 110-220 volt service. Control circuit operates on 110 volt-60 cycle current.

STANDARD EQUIPMENT

All "CF" Conditioners are available in four different types based on equipment furnished.

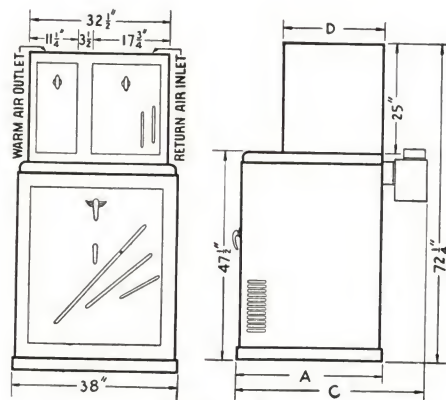
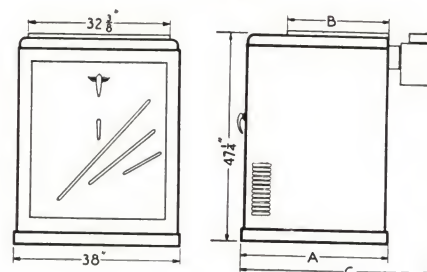
Type A—Includes insulated cabinet, without bonnet; one-piece cabinet base; cast iron heat exchanger with extended copper rod and fin heating surfaces; multi-inspirator burner; automatic pilot and fittings; draft diverter; V15A electric motor gas valve, transformer and wire; T11A Acratherm thermostat with 30 ft. of triplex wire; combination blower and temperature limit control; rubber insulated blower assembly; resilient base motor with adjustable base and adjustable pulley; renewable filters; main line shut-off cock; adjustable gas pressure regulator; cast iron evaporating pan, copper float tank, pipe strap valve, 10 ft. copper tubing and fittings. A summer switch may be installed to control the blower for summer operation.

Type B—In addition to Type A equipment, the Type B includes bonnet with access doors; bonnet lined with sound-deadening material.

Type C—Includes all Types A and B equipment plus the Janitrol refractory plate type humidifier, low voltage solenoid water valve with transformer, pressure gauge, water pressure regulator, strap valve, 10 ft. copper tubing and fittings. Humidity control obtained by adding a humidistat.

Type D—Includes all Type C equipment and the Janitrol Compensating Control System in place of the customary controls. The Janitrol Compensating Control System includes a two-speed motor (1140-1725 R.P.M.), a two-contact fan control, limit control, V15C motor valve, outside temperature bulb with 25 ft. of capillary tubing and bellows-operated compensating valve. Not available for 25 cycle.

TYPE A



TYPES B, C & D

A MODERN UNIT AT MODERATE PRICE

The Janitrol CA Conditioner is designed especially for installation in the medium class home where modern winter air conditioning is desired but economy is necessary. Made in a complete range of sizes from 60,000 Btu hourly input capacity to 240,000 Btu hourly input capacity, it incorporates much of the equipment furnished with the CF series. Fully automatic in operation, the CA Conditioner fulfills the requirements of true winter air conditioning by mechanically circulating filtered, warmed, humidified air in every room.

Here, we believe, is the greatest medium-priced value we have ever been able to offer—a unit so obviously better that it will satisfy those who want all of the features of winter air conditioning but who do not want to invest in de luxe equipment.

DESIGN FEATURES

HEATER . . . twin heaters are rigidly mounted directly above the blower to afford extreme compactness and provide large heating capacity in minimum space. Heaters are constructed of heavy steel plate, corrugated vertically. In addition to providing ample heating surface, these corrugations serve to make the heaters strong and rigid. Being vertical, the corrugations are streamlined with the upward flow of the air providing full contact with the air over the entire area of the heaters. This assures maximum heat transfer and high efficiency in operation.

CABINET . . . High grade furniture steel finished in tapestry blue crinkle. Chromium hardware. No bolts, nuts or screws mar the appearance of the unit as all joints are of the slip-seal type and are air-tight. All control equipment, piping and electric connections are concealed inside the casing, yet are easily available through large access doors.

BURNER . . . exclusive multi-inspirator type consisting of a multiplicity of individual primary air mixers each producing a short, sharp flame. Individual multi-port burner heads make possible this type flame without flashback even when the gas input is reduced. Burner design is such that the gas pipes in

which the orifices are drilled do not contact the individual burner tubes; consequently, the tubes remain relatively cool and retain full capacity after hours of continuous operation. Burners ignite quietly, operate quietly and shut off quietly.

BLOWER . . . centrifugal, multi-blade type mounted to the casing base with rubber grommets. This method of mounting, together with felt insulation around the discharge opening, eliminates vibration and assures extremely quiet blower operation.

MOTOR . . . Mounted on aligned base, V belt drive. Belt adjustment with single thumb screw.

FILTER . . . replaceable, spun glass type with adhesive coating, removes dust, dirt and pollen before air enters blower.

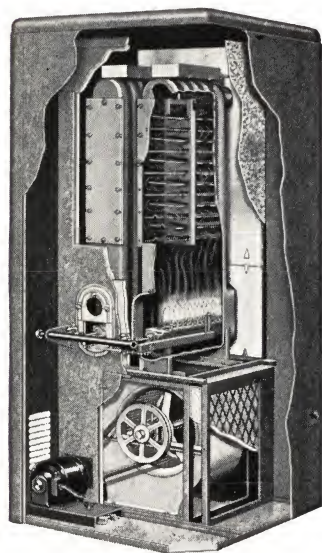
HUMIDIFIER . . . pan type with large pan-humidifier mounted on top of each heater. The water is heated and its evaporation thereby accelerated. V-shaped interior of pan permits regulation of water level and thus provides a means to control humidity. A copper water supply tank is mounted on the rear of the casing. In this tank a ball-float opens and closes a water valve to maintain the water in the pans at the desired level.

BACK DRAFT DEVICE . . . Special Janitrol design. Simple and extremely effective.

CONTROLS . . . See "Standard Equipment" on page five. All controls are completely housed in the conditioner casing.

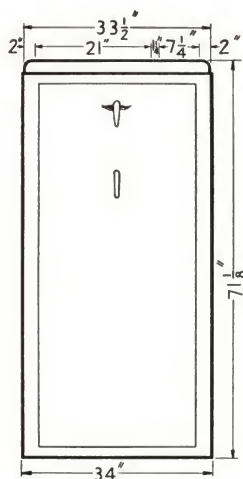


Series CA Conditioner

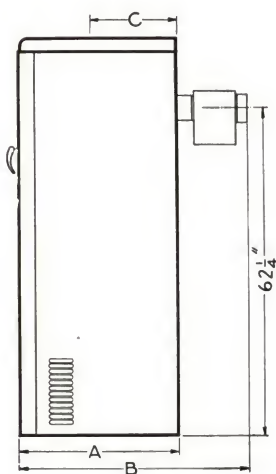


Sectional view CA Conditioner

WINTER AIR CONDITIONER



Front View



Side View

ENGINEERING DATA

Model No.	Btu Input per Hour	*Btu Output At Register	†Approx. C.F.M. Delivered At Register	Gas Capacity Cu. Ft. per Hour At Various Btu			BLOWER DATA			
				550	800	1000	Dia. of Wheel	Width of Wheel	No. of Wheels	R.P.M. At 1/8" Static
CA 60-37	60,000	43,200	600	109	75	60	14"	7"	1	525
CA 90-37	90,000	64,800	900	164	113	90	14"	7"	1	550
CA120-37	120,000	86,400	1200	218	150	120	14"	10"	1	550
CA150-37	150,000	108,000	1500	273	188	150	14"	14"	1	550
CA180-37	180,000	129,600	1800	328	225	180	14"	7"	2	550
CA240-37	240,000	172,800	2400	436	300	240	14"	10"	2	550

Note: Symbols refer to explanatory notes under first table on page 3.

STANDARD EQUIPMENT

CA Conditioners are available with three different types of controls. **WITH STANDARD CONTROLS**—Includes insulated cabinet; cabinet base with integral motor mounting; two heavy steel plate corrugated heat exchangers; multi-inspirator burners; main line shut-off cock; adjustable gas pressure regulator; automatic pilots with fittings; draft diverter; electric solenoid gas valve, relay, BX conduit and fittings; T11A Acra-therm thermostat with 30 ft. of triplex wire; limit control; rubber mounted blower assembly, resilient base motor; replaceable filters; evaporating pans, copper float tank, pipe strap valve, and 10 ft. copper tubing and fittings. A fan control (No 6031) may be installed but is not supplied as standard equipment.

WITH TYPE V-5 CONTROLS—Equipped the same as conditioners with standard controls except that a V15A motor gas valve and an L101A combination limit and fan control (SC part No. 6325) are substituted for the standard solenoid gas valve, relay and limit control.

WITH TYPE V-7 CONTROLS—Equipped the same as conditioners with standard controls except that a V15C motor gas valve and an L101A combination limit and fan control (SC Part No. 6325) are substituted for the standard solenoid gas valve, relay and limit control.

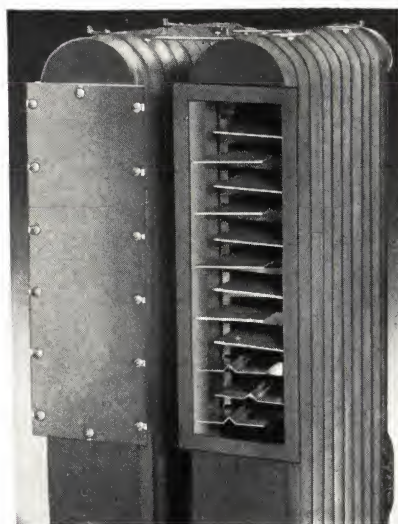
A summer blower switch may be installed to control the blower for summer operation on all three types.

DIMENSIONS IN INCHES

Catalog No.	DIMENSIONS						Flue Dia.	*Gas Conn.	MOTOR DATA		
	A	B	PLENUM CHAMBER						H.P.	Type	R.P.M.
			Warm Air		Return Air						
			Width	Depth-C	Width	Depth-C					
CA 60-37	28 $\frac{3}{8}$	40 $\frac{3}{8}$	21	15 $\frac{1}{2}$	7 $\frac{1}{4}$	15 $\frac{1}{2}$	4	$\frac{3}{4}$	$\frac{1}{8}$	S.P.	1725
CA 90-37	33 $\frac{3}{8}$	47	21	20 $\frac{1}{2}$	7 $\frac{1}{4}$	20 $\frac{1}{2}$	5	$\frac{3}{4}$	$\frac{1}{8}$	S.P.	1725
CA120-37	39 $\frac{1}{8}$	52 $\frac{1}{2}$	21	26	7 $\frac{1}{4}$	26	5	$\frac{3}{4}$	$\frac{1}{4}$	S.P.	1725
CA150-37	43 $\frac{3}{8}$	58 $\frac{3}{8}$	21	30 $\frac{3}{4}$	7 $\frac{1}{4}$	30 $\frac{3}{4}$	6	1	$\frac{1}{4}$	S.P.	1725
CA180-37	51 $\frac{3}{8}$	66 $\frac{3}{8}$	21	38 $\frac{1}{4}$	7 $\frac{1}{4}$	38 $\frac{1}{4}$	6	1 $\frac{1}{4}$	$\frac{1}{8}$	CAP.	1725
CA240-37	62 $\frac{3}{4}$	78 $\frac{3}{8}$	21	49 $\frac{3}{8}$	7 $\frac{1}{4}$	49 $\frac{3}{8}$	7	1 $\frac{1}{4}$	$\frac{1}{8}$	CAP.	1725

*This is the size of the manifold connection—not the size of the gas supply line.

S.P.—Split phase type motor. CAP.—Capacitor type motor.



Twin Type Heater "CA" Conditioner

HOW AIR IS CONDITIONED

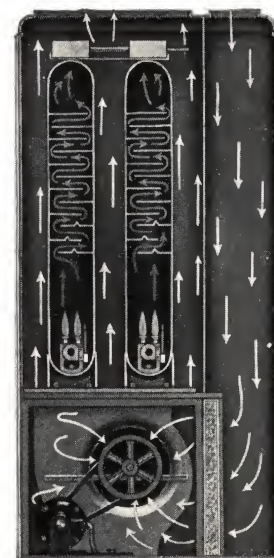
Air from the return ducts is introduced into the unit either at top, or through side or bottom. First it passes through the filter where it is cleaned; thence through the blower which discharges it upward over the vertically corrugated heaters where it is quickly warmed. Humidifiers are located on top the heaters so that all air must flow over them. The conditioned air is then conveyed through the warm air ducts into the rooms.

HOW HEAT IS TRANSFERRED

The hot gases of combustion, rising through the interior of the heater, are directed by the interior baffles. These baffles are staggered to force the gases through a long and extended passage—both vertical and horizontal—during which the heat is surrendered to the heater surfaces from whence it is picked up by the air stream.

CONTROLLED OPERATION

With standard controls, when the thermostat calls for heat the relay is closed and the solenoid valve opens the main gas supply to the burner. At the same time, the blower is started and circulation of the heated air begins. When the thermostat is satisfied, both the gas supply and blower stop automatically. A heat actuated blower control switch is furnished with V-5 and V-7 controls for delayed starting of blower.





"BC" LOW PRICED WINTER AIR CONDITIONERS



ESSENTIALS WITHOUT FRILLS

HEAT EXCHANGER . . . Twin heat exchangers. Made of heavy steel plate. Corrugated vertically for increased heating surface . . . for strength . . . and to compensate for temperature expansion.

CABINET . . . Furniture steel finished in baked crinkle tapestry blue. Chromium plated fittings.

BURNERS . . . Gray cast iron. Raised ports. Venturi type mixers with adjustable air shutters.

BLOWER . . . Centrifugal, multi-blade type with special mounting for quiet operation.

MOTOR . . . Resilient base motor. Automatic belt tightener. V-belt drive.

BACK DRAFT DEVICE . . .
Special Janitrol design. Simple and extremely effective.

CONTROLS . . . All controls housed inside of cabinet. For types of controls furnished see "Standard Equipment" below.

STANDARD EQUIPMENT

With Standard Controls—Venturi type mixers with adjustable air shutters, Janitrol automatic pilot, pilot cock with fittings, pilot wire, 30 ft. of thermostat wire, main line shut-off cock, junction box, blower assembly, automatic belt tightener, V belt, adjustable gas pressure regulator, electric solenoid gas valve, relay, T11A Aeratherm, and limit control.

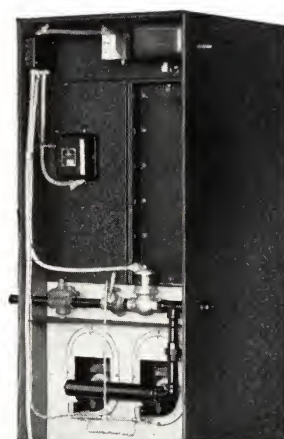
With Type V16 Controls—Equipped the same as Conditioners with standard controls except that a V16A solenoid gas valve and transformer and an L101-A combination limit and fan control are substituted for the standard solenoid gas valve, relay, and limit control.

With Type V5 Controls—A V15A motor gas valve and an L101-A combination fan and limit control are substituted in place of the standard controls, consisting of a high voltage solenoid valve, relay, and limit control.

ACCESSORIES

The following accessories are available as additions: Humidifier assembly—Part No. 9703 includes evaporating pan—one for each combustion chamber, copper float tank, water pipe strap valve, and 10 ft. copper tubing with fittings.

Filters—The BCH90-83 requires two filters (size 16x20) which can be installed in holding clips in filter units. The BCV90-83 requires one filter (size 20x20) to be installed in the return air duct. Return air ducts may be connected on either side or at the rear. Connection may also be brought up to the bottom of the unit.



ENGINEERING DATA AND DIMENSIONS IN INCHES

Model No.	Code	Btu Input Per Hour	*Btu Output At Register	Approx. C.F.M. Delivered At Register	Temp. Rise	†Blower Data		Motor Data			Approx. Shipping Weight
						Dia. of Wheel	R.P.M. At .15" Static	H.P.	Type	R.P.M.	
BCV90-83	Baretta	90,000	64,800	970	75°	10½	650	¾	S.P.	1725	650 lbs.
BCH90-83	Barff										

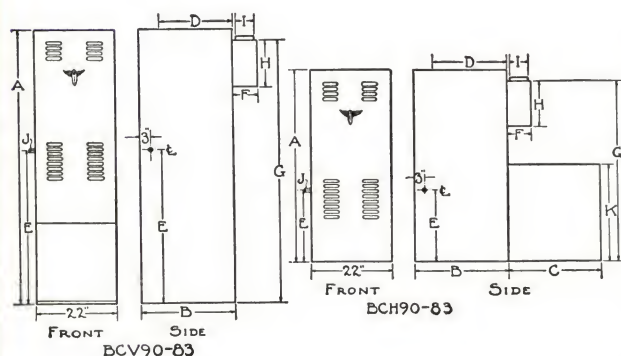
*The "Hourly Btu output at heat register" capacities allow for a 10% heat loss from the warm air ducts between the bonnet and the register. This is the normal loss for the average installation. Longer than average ducts, type of duct covering, duct exposure, whether or not basement is heated, etc., should be considered and the conditioner sized accordingly.

†Blowers are sized so that the approximate C.F.M. required will be delivered against the resistance of the duct system, in addition to static pressure created by resistance of filters, blowers, heat exchangers, etc.

DIMENSIONS—INCHES

Model No.	A	B	C	D	E	F	G	H	I	*J	K
BCV90-83	74	25½	..	20	41½	6	71	12½	5	¾	..
BCH90-83	52	25½	25	20	19½	6	49	12½	5	¾	26

*This is the size of the manifold connection—not the size of the gas supply line.



JANITROL



"GC" GAS-FIRED GRAVITY HEATERS

For the Modest New Home and for Improved Heating in the Old
HEAT EXCHANGER . . . Made of heavy steel plate, corrugated vertically. Double, corrugated metal inner liners, attached to the heat exchangers, provide a secondary heating surface.

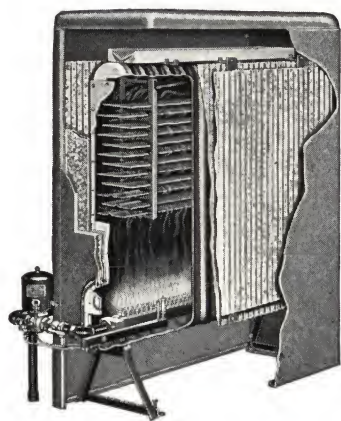
CABINET . . . Made of furniture steel. Finished in tapestry blue baked enamel.

BURNER . . . Multi-inspirator type. Same as furnished on CF and CA Janitrol Conditioners.

HUMIDIFIER . . . Evaporating pan, with copper float tank. Simple in operation and effective.

BACK DRAFT DEVICE . . . Special Janitrol design. Simple and extremely effective.

CONTROLS . . . For list of controls furnished, see "Standard Equipment" below.



STANDARD EQUIPMENT

Main line shut-off cock; adjustable gas pressure regulator; automatic pilot with fittings; draft diverter; V15A motor gas valve with transformer and 25 ft. transformer wire; T11A Acra-therm thermostat with 30 ft. triplex wire; evaporating pan, copper float tank, pipe strap valve and 10 ft. copper tubing with fittings.

Model 2GC120-37 consists of two individual GC120-37 units supplied with only one electric motor gas valve one pressure regulator and one water pipe strap valve.

ENGINEERING DATA AND DIMENSIONS IN INCHES

Catalog No.	Rating Btu per Hour		Sq. In. Pipe Area		GAS CAPACITY Cu. Ft. per Hour			DIMENSIONS			
	Input	*Available At Register	†First Floor Rooms	‡Second Floor Rooms	550 Btu	800 Btu	1000 Btu	A	B	Flue Diam.	§Gas Conn.
GC 75-37	75,000	51,000	390	300	136	94	75	31¾	50¾	4	¾
GC 90-37	90,000	61,200	470	360	164	113	90	39¾	58¾	5	¾
GC120-37	120,000	81,500	625	480	218	150	120	50¾	68¾	6	¾
GC150-37	150,000	102,000	780	600	272	188	150	31¾	49	2-4	1
GC180-37	180,000	122,400	940	720	328	226	180	39¾	57	2-5	1
2GC120-37	240,000	163,000	1250	960	436	300	240	50¾	68¾	2-6	1¾

*Hourly Btu Available at Register allows for 15% heat loss from warm air ducts between bonnet and register. This is normal loss for average gravity installation. Longer than average ducts, type of duct covering, duct exposure, whether the basement is heated, etc., should be considered and heater sized accordingly.

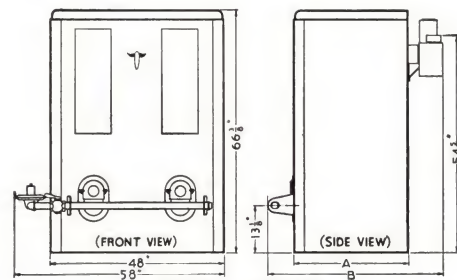
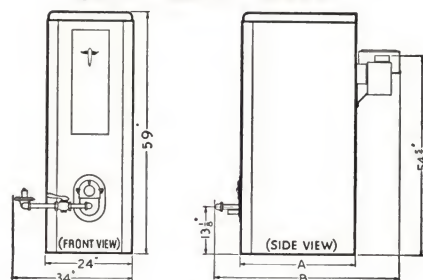
†Leader pipe areas shown in this column are based on delivering 130 Btu per sq. in. of pipe area.

‡Leader pipe areas shown in this column are based on delivering 170 Btu per sq. in. of pipe area.

To select proper size unit for a two-story house: divide second floor warm air pipe area required by .75 and add to first floor warm air pipe area required. Select Gravity Heater on basis of area from column "First Floor Rooms."

§This is the size of the manifold connection—not the size of the gas supply line.

GC75 — GC90 — GC120



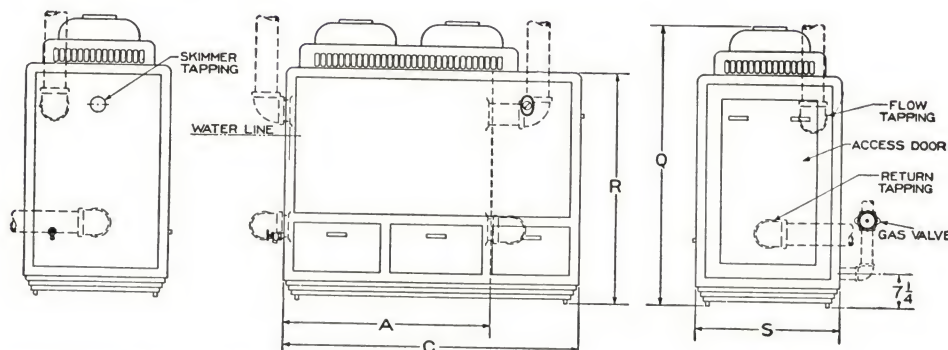
GC150 — GC180

JANITROL

GAS-FIRED BOILERS

The Janitrol gas boiler combines an unusually attractive appearance with the latest features of modern gas boiler design . . . cast iron sections . . . cast iron flue top . . . chromium plated dome . . . chromium base . . . asbestos air-cell insulation . . . steam separating baffles . . .

etc., etc. For detailed information on the complete Janitrol boiler line, including larger and smaller sizes than listed, write us for the complete 24 page specification booklet, Form SW-331-J.



ENGINEERING DATA AND DIMENSIONS IN INCHES

* Boiler No.	Available Btu Per Hour (Output)	Certified A.G.A. Rating Sq. Ft.		†Bonded Load C.I. Radiation Sq. Ft.		Gas Consumption Cubic Feet Per Hour		Floor to Top of Flue Outlet Q	Floor to Top of Boiler Cover R	Width of Boiler A	Overall Width C	Flue to Chimney	Depth of Boiler Cover S
		Steam	Water	Steam	Water	1000 Btu Gas	500 Btu Gas						
SERIES 3													
3-3	72,000	300	480	195	314	90	180	51¾	41½	14¾	32¾	6	25
4-3	108,000	450	720	293	470	135	270	51¾	41½	18¾	36¾	6	25
5-3	144,000	600	960	392	628	180	360	51¾	41½	22¾	40¾	7	25
6-3	180,000	750	1200	491	800	225	450	51¾	41½	26¾	44¾	8	25
7-3	216,000	900	1440	588	941	270	540	51¾	41½	30¾	48¾	9	25
8-3	252,000	1050	1680	690	1104	315	630	51¾	41½	34¾	52¾	9	25
9-3	288,000	1200	1920	792	1267	360	720	51¾	41½	38¾	56¾	9	25
SERIES 4													
4-4	135,000	560	900	367	590	169	338	58⅜	48⅞	18¾	36¾	7	25
6-4	225,000	940	1500	614	1004	281	562	58⅜	48⅞	26¾	44¾	8	25
7-4	270,000	1130	1800	747	1215	337	674	58⅜	48⅞	30¾	48¾	8	25
8-4	315,000	1310	2100	870	1435	394	788	58⅜	48⅞	34¾	52¾	9	25
9-4	360,000	1500	2400	1004	1662	450	900	58⅜	48⅞	38¾	56¾	9	25

*Insert S for Steam and W for Water when specifying boiler size. Thus: 7-S-4 or 7-W-4, etc.

†The Bonded Direct Cast Iron Radiation Loads (Bonded Loads) shown below are for convenience in selecting the boiler size. These ratings include an allowance for starting up or peak loads; also, an allowance for normal piping. This makes it unnecessary to add anything for either starting up or piping loads, unless the piping load is excessive.

WATER HEATER



The Thrift Water Heater is of the "Constant demand" type . . . that is, at the time of installation, the gas input can be set to conform to the hot water requirements of that particular family. Consequently the gas usage cannot go above a predetermined figure. Due to this feature, the Thrift is particularly well adapted for use where monthly operating cost is an important factor. The Thrift is made in three tank sizes . . . 30, 45, and 60 gallons. All tanks are made of heavy gauge copper bearing steel with ample insulation.

An efficiency feature of the Thrift is the method of applying heat to the water. A long U-shaped tube in which combustion takes place, rises from the burner to the top of the tank, then back down to the bottom . . . this tube being entirely surrounded by the water which is to be heated. Detailed specification sheets will be sent upon request.

CIRCULATING HEATER

Marketed under the trade name Janitrolaire, the Janitrol Forced Air Circulating Heater is the solution of the heating problem in many small low cost homes and for modernizing existing small homes. It is made in two capacities, 50,000 and 85,000 Btu input. The cabinet is furniture steel, finished in mahogany with ebony trim by the Di-Noc process. The 18", six-blade, aluminum fan is exceedingly quiet in operation. The central grille, shown in the illustration, is adjustable and can be rotated so that the warmed air can be sent in any desired direction. A pan type humidifier is furnished. The unit is equipped with an ionizer to freshen and revitalize the air and to free it from ordinary household odors such as stale tobacco smoke and cooking odors. Detailed specification sheets furnished upon request.



KATHABAR

KATHABAR

INDUSTRIAL AND COMMERCIAL AIR CONDITIONING EQUIPMENT



KATHABAR

Surface Combustion Corporation has been developing the KATHABAR system of air conditioning for a number of years. Many very large outstanding installations are in operation in both the comfort and the industrial field. Engineering data from these installations is very interesting and is available upon request.

SIMPLIFIED HUMIDITY REGULATION

Kathabar Air Conditioning equipment employs, as the dehumidifying agent, a lithium chloride solution called *Kathene*. The principle utilized is the difference in the vapor pressure between the air to be conditioned and the *Kathene* over which the air is passed. When the vapor pressure of the *Kathene* is lower than that of the air the *Kathene* absorbs moisture and the action is one of dehumidification. When the vapor pressure of the *Kathene* is higher than the air, the air absorbs moisture from the *Kathene*, thus humidifying the air. The vapor pressure of the *Kathene* is controlled by regulation of its temperature.

During the past three years Kathabar dehumidification equipment has been incorporated in many commercial and industrial air conditioning installations. Of particular advantage with the Kathabar system is the wide range of

These Units Are Designed for Two Major Applications:

1. Year-'round Comfort Conditioning in large buildings
2. Humidity and Temperature Control for Industrial Processes

dehumidification which can be obtained under extremely accurate control. Of further significance is *Kathene's* permanency, requiring no replenishment nor replacement.

Now, the manufacturer of Kathabar offers a series of standard units for complete, year 'round air conditioning. Under fully automatic control, these units circulate, clean, wash and deodorize the air. During summer they dehumid-

STANDARD KATHABAR UNITS

Unit No.	Capacity C.F.M.	Overall Dimensions (ducts not included)		
		Width	Depth	Height
5	500-1600*	120"	36"	76"
10	1600-3200*	129"	53"	82"

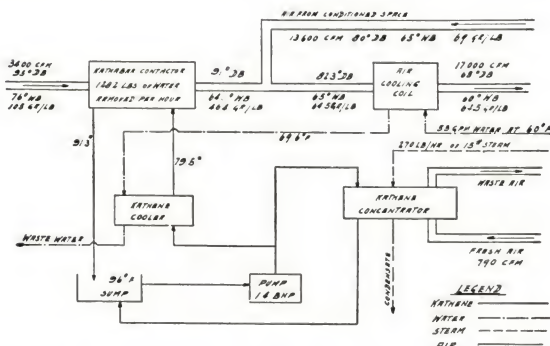
For Larger Air Volumes, Multiple-Cell Banks are Available.
*Maximum capacities for Industrial Use.

ify and cool the air and in winter they humidify and heat. One of the outstanding features of Kathabar air conditioning is the deodorizing and germicidal properties of *Kathene*.

OPERATION

Accompanying is a diagram of Kathabar's typical dehumidification and cooling cycle. 2500 CFM of outside air enter the unit at 80° F. (dry bulb) and at 80% relative humidity. The *contactor*, extracts 53% of the moisture reducing the relative humidity to 31%. The dehumidified air is then mixed with 18,500 CFM of return air from the rooms. The entire 21,000 CFM are then passed through the water-cooled *after-cooler* and emerge for distribution to rooms at 65° F. This permits maintaining rooms at 80° F. and 45% relative humidity. Dehumidification and cooling are accomplished with 100 gallons per minute of 56° F. water and 245 lbs. of steam per hour, indicative of Kathabar's economical operation.

In addition to these standard units, Kathabar equipment is available for any special application either for comfort purposes or for industrial processing. Complete information can be obtained by writing Kathabar Division, Surface Combustion Corporation, Toledo, Ohio.





JANITROL GAS-

FOR COMMERCIAL AND INDUSTRIAL HEATING

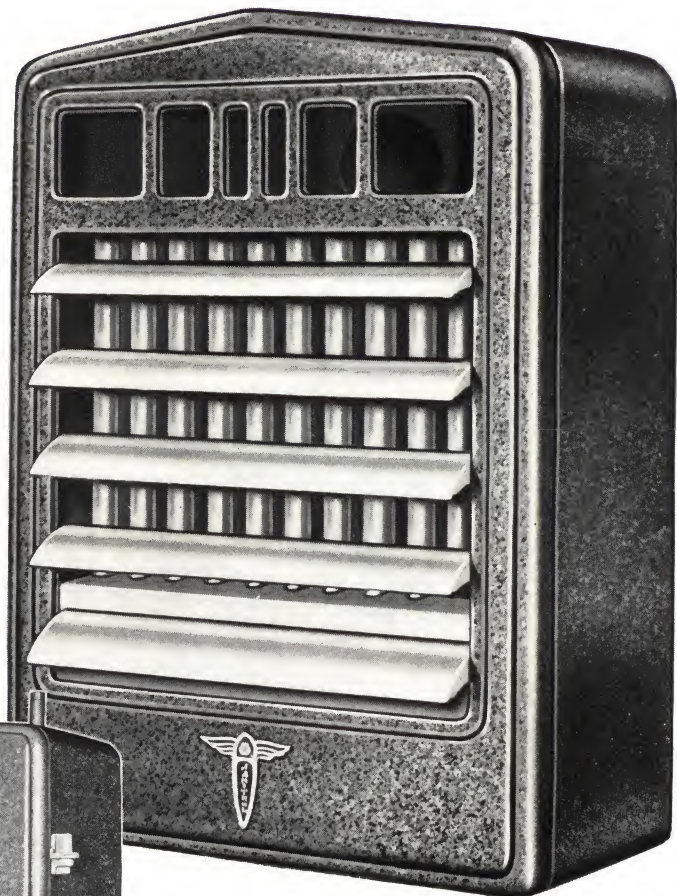
The Janitrol Gas-Fired Unit Heater is an independent, self-contained, automatic unit which generates heat by the burning of gas. No central heating plant or boiler is needed, no water is used, no firing attention is necessary and no fuel storage space is required.

The heaters are suspended from overhead with underside of heater about 8 feet from the floor. In this location, no obstruction is offered to the passage of people and no valuable floor space is occupied.

From its overhead location, the heater, by fan circulation of warm air, distributes heat where it is needed, and provides constant, uniform temperature. Circulation of the air also overcomes stratification and with it, high uneconomical ceiling temperatures.

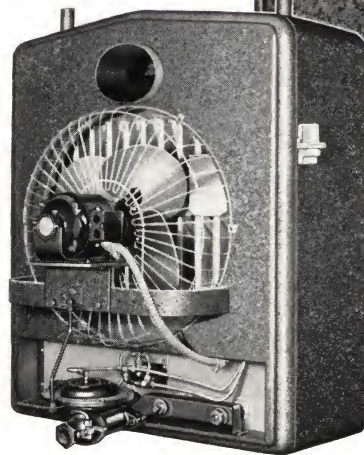
Rapid response quickly brings up temperature when sudden blasts of cold air from opened doors chill the interior. Reduced temperatures, over-night and week-ends, afford economy of operation yet the automatic, thermostatic control of the heaters safeguards against freeze-ups.

For complete heating; for supplementary heating when existing heating capacity is insufficient; for replacement of worn out heating systems; for building expansion; for specific zone or spot heating; for periodic heating; for these and any commercial or industrial heating requirements, Janitrol Gas-Fired Unit Heaters provide a simple, effective method to obtain completely satisfactory results.



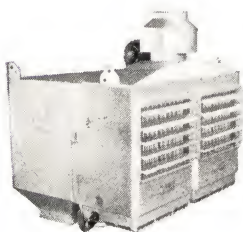
SERIES U AND SERIES C

Series U and Series C each comprise seven models ranging identically in input from 45,000 to 200,000 Btu hourly input. Units of the same capacity in both series are exactly the same throughout with the exception of the metal used in the combustion chamber, and heat exchangers or radiators. In Series U heaters, the metal is chrome alloy steel; in Series C, ingot iron is used. Series U and Series C heaters are approved by the American Gas Association and listed by Underwriters' Laboratories as standard for general use. For installations in garages, airplane hangars, etc., specify Series UG or Series CG. Example: UG85-37 or CG85-37.

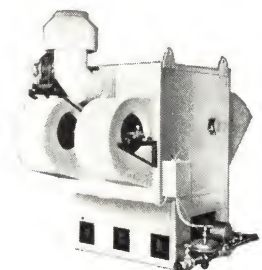


LARGE CAPACITY, HEAVY DUTY UNITS

The 400-36 TWIN TYPE (left) and the S4000 (right) are both designed for large volume heating such as exposition halls, warehouses, factory buildings, etc. Both units are rated at 400,000 Btu input per hour. Capacities and other data are given in table at top of next page. Both units are equipped with squirrel cage type fan which permits the use of duct work for heat distribution. The 400-36 type is furnished with four suspension lugs. The S4000 may be suspended or set on platform or floor. Both units finished in heat resisting aluminum paint. Complete details furnished on application.



400-36 Twin Type



S4000

FIRED UNIT HEATERS



CAPACITIES OF STANDARD SERIES U AND SERIES C

Catalog No.		INPUT			OUTPUT Unit Vented		OUTPUT Unvented Btu per Hr.	Air Deliv. C.F.M.	Air Vel. At Heater Outlet ft./min.	Motor Size H.P.	Fan Speed R.P.M.
Series U	Series C	Btu per Hr.	Cu.F. Gas per Hour		*Btu per Hr.	*Sq. Ft. Steam Rad. Equivalent					
U 45-37	C 45-37	45,000	82	45	37,350	156	40,500	750	595	1/25	1525
U 60-37	C 60-37	60,000	109	60	49,800	207	54,000	955	580	1/25	1525
U 85-37	C 85-37	85,000	155	85	70,550	294	76,500	1450	615	1/12	1140
U100-37	C100-37	100,000	182	100	83,000	345	90,000	1750	605	1/12	1140
U125-37	C125-37	125,000	227	125	103,750	432	112,500	2095	610	1/12	1140
U125-37	C125-37	125,000	227	125	103,750	432	112,500	2095	610	1/12	860
U160-37	C160-37	160,000	291	160	132,800	553	144,000	2615	890	1/4	1125
U160-37	C160-37	160,000	291	160	132,800	553	144,000	2300	790	1/8	860
U200-37	C200-37	200,000	364	200	166,000	690	180,000	2955	850	1/4	1125
U200-37	C200-37	200,000	364	200	166,000	690	180,000	2495	720	1/8	860
400-36 Twin Type		400,000	728	400	332,000	1380	360,000	5000	820	1.	770
S4000		400,000	728	400	332,000	1380	360,000	5000	800	1	780

*Output based on effective heating of vented unit and when unit is located in room being heated.

DIMENSIONS—INCHES

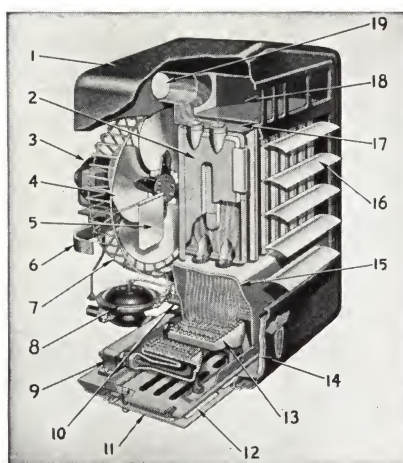
Catalog No.		A	B	*C	D	E	F	G	H	J	K	L	M	N	**O
Series U	Series C														
U 45-37	C 45-37	29	18 $\frac{3}{8}$	11 $\frac{3}{8}$	25 $\frac{3}{8}$	14 $\frac{3}{8}$	10 $\frac{1}{2}$	27 $\frac{3}{8}$	15 $\frac{1}{4}$	14	13	7 $\frac{1}{2}$	1	$\frac{3}{4}$	4
U 60-37	C 60-37	29	22 $\frac{5}{8}$	15 $\frac{3}{8}$	25 $\frac{3}{8}$	14 $\frac{3}{8}$	10 $\frac{1}{2}$	27 $\frac{3}{8}$	15 $\frac{1}{4}$	14	17	7 $\frac{3}{4}$	1	$\frac{3}{4}$	5
U 85-37	C 85-37	36 $\frac{1}{2}$	22 $\frac{5}{8}$	15 $\frac{3}{8}$	26	15 $\frac{1}{2}$	10 $\frac{1}{2}$	27 $\frac{3}{4}$	15 $\frac{1}{4}$	20	17	9 $\frac{1}{4}$	1	1	6
U100-37	C100-37	36 $\frac{3}{4}$	26 $\frac{3}{8}$	19 $\frac{3}{8}$	26	15 $\frac{1}{2}$	10 $\frac{1}{2}$	27 $\frac{3}{4}$	15 $\frac{1}{4}$	20	21	9 $\frac{1}{2}$	1	1	6
U125-37	C125-37	37	30 $\frac{3}{8}$	23 $\frac{3}{8}$	27 $\frac{1}{4}$	17 $\frac{1}{4}$	10	29	15 $\frac{1}{4}$	20	25	9 $\frac{3}{4}$	1	1	6
U160-37	C160-37	36 $\frac{3}{4}$	26 $\frac{3}{8}$	19 $\frac{3}{8}$	37 $\frac{3}{4}$	22 $\frac{3}{8}$	14 $\frac{3}{8}$	39 $\frac{1}{2}$	23 $\frac{3}{4}$	20	21	9 $\frac{1}{2}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	7
U200-37	C200-37	37	30 $\frac{3}{8}$	23 $\frac{3}{8}$	37 $\frac{3}{4}$	22 $\frac{3}{8}$	14 $\frac{3}{8}$	39 $\frac{1}{2}$	23 $\frac{3}{4}$	20	25	9 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	8

*These dimensions subject to variations of plus or minus $\frac{1}{8}$ ".

**Flue opening is oval shaped. This is size of round flue pipe which can be formed to fit over flue opening collar.

CONSTRUCTION FEATURES—SERIES U AND C

1. Casing of heavy gauge sheet steel stampings finished in blue crinkle baked enamel.
2. Seam welded heat exchanger tubes or radiators. Center baffle divides hot rising gases into two streams resulting in better heat transfer.
3. Resilient mounted, split phase, fan duty motor. No radio interference.
4. Aluminum alloy fan of new and revolutionary shape, pitch and weight to operate with extreme quietness.
5. Sail actuated by air motion of fan opens and closes main gas valve as fan starts and stops.
6. Sturdy motor support attached to unit to overcome vibration.
7. Fan guard in two sections for easy removal.
8. Gas actuated automatic control valve opens gas supply to burners when pilot flame is burning and fan is turning, closes gas supply when fan stops or pilot flame fails.
9. Cast iron manifold distributes gas to brass burner orifices mounted in manifold.



10. Bimetal thermal pilot assembly. Pilot flame must be burning before automatic gas valve supplying burners can open.
11. Bottom removable for easy access to burners.
12. All air for combustion taken through these ports.
13. Cast iron burners with cast raised ports accurately machined to gas specifications.
14. Insulation between combustion chamber and casing.
15. Combustion chamber housing burners; ample height to prevent flame impingement.
16. Adjustable horizontal louvers to direct warm air from heater. Vertical or combination vertical and horizontal available for special installations.
17. Collecting chamber into which burned gases empty from vertical radiators.
18. Built-in draft diverter prevents back drafts reaching combustion chamber.
19. Flue connection for flue pipe to chimney or stack.

Units are furnished with adjustable gas pressure regulator, main gas line hand valve and safety device to prevent overheating—not shown.

Engineering Cooperation Available From Many Branch Offices . . . See Page 12

THE WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL HEAT TREATING EQUIPMENT PRODUCES JANITROL

Surface Combustion Corporation has devoted thirty years to the development and production of gas-fired equipment for industrial heat treating processes and for space heating purposes, domestic, commercial and industrial. It developed the first automatic conversion burner for the burning of gas in household furnaces and boilers. The widely known Columbus and Heatmaster warm air house

heating equipment were products of Surface Combustion.

With its three modern factories, its research facilities and laboratory equipment, and its engineering personnel, Surface Combustion Corporation is well qualified to design, manufacture and furnish equipment that gives lasting satisfaction to all concerned.

ENGINEERING AND SALES SERVICE IN MOST PRINCIPAL CITIES

The services of Janitrol engineers, trained experts in heating and air conditioning, are readily available to all architects, engineers, builders and heating contractors desiring assistance. Layouts, specifications, supervision of installations and servicing of equipment all are furnished from branch offices located to render close, competent, continuous cooperation, everywhere. Whenever you have an air conditioning or gas heating problem, phone, wire or write the nearest Surface Combustion office. A trained sales engineer is always at your service.

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Manufacturers of

JANITROL GAS-FIRED PRODUCTS